



# Does legal heritage affect obesity? The channel of motor vehicle dependence



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## ABSTRACT

**Carlin, Paul S., Kidd, Michael P., and Ulubaşoğlu, Mehmet A.**—Does legal heritage affect obesity? The channel of motor vehicle dependence

We find a robust relationship between motor vehicle ownership, its interaction with legal heritage and obesity in OECD countries. Our estimates indicate that an increase of 100 motor vehicles per thousand residents is associated with about a 6% point increase in obesity in common law countries, whereas it has a much smaller or insignificant impact in civil law countries. These relations hold whether we examine trend data and simple correlations, or conduct cross-section or panel data regression analysis. Our results suggest that obesity rises with motor vehicle ownership in countries following a common law tradition where individual liberty is encouraged, whereas the link is small or statistically non-existent in countries with a civil law background where the rights of the individual tend to be circumscribed by the power of the state. *Journal of Comparative Economics* 41 (2) (2013) 621–633. IUPUI, Indianapolis, IN, USA; School of Economics and Finance, Queensland University of Technology, Brisbane, QLD, Australia; School of Accounting, Economics and Finance, Deakin University, Melbourne, VIC, Australia.

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## 1. Introduction

We contribute to the literature on the impact of governmental behavior on human welfare by establishing a surprising link between legal heritage and rising obesity in the developed world. Obesity represents an international epidemic affecting millions around the globe, with a myriad of government interventions consuming significant state and national budgets. Given current growth rates, obesity is projected to afflict 103 million Americans prior to the end of the decade. The US is projected to spend \$344 billion on obesity related health care problems corresponding to 21% of healthcare spending, with a per-capita expense of \$1425 (Thorpe, 2009). Obesity is often quoted as the fastest growing public concern in many countries, leading to thousands of deaths annually and closely linked to many adverse medical conditions.

We examine OECD data on per capita motor vehicle ownership and obesity in the context of legal heritage. Utilizing a range of empirical techniques including the analysis of trend data, simple correlations, cross-sectional and panel data, we find significant evidence of a direct relationship between motor vehicle ownership and obesity.<sup>1</sup> Interestingly, the link is very

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<sup>1</sup> We use the standard definition of obesity. Given weight in kilograms (kg) and height in meters (m), an individual is considered obese if their body mass index ( $=\text{kg}/\text{m}^2$ ) exceeds 30.

strong in countries with a common law heritage and either non-existent or very much weaker in countries with a civil law heritage. The finding is not entirely unexpected as common law tends to restrict while civil law extends the power of the state, affecting in turn choices regarding motor vehicle ownership. Our results suggest that countries with a common law heritage may be at a disadvantage in combating the obesity promoting effects of motor vehicle ownership. This indicates how a constitutional arrangement such as a legal system may interact with daily choices of individuals to produce severe public health problems with social and economic consequences. Our results contrast with the burgeoning literature echoing Hayek (1973) which points to the superiority of common law for economic welfare, see La Porta et al. (1998) and Acemoglu and Johnson (2005).

Two core competing explanations for the rising tide of obesity both in the US and elsewhere<sup>2</sup> are (i) the role of reduced exercise, especially on the job, see Lakdawalla and Philipson (2005), Philipson (2001) and Philipson and Posner (1999) and (ii) increased calorie intake, see Cutler et al. (2003). Thus *ceteris paribus* increases in calorie intake or reductions in physical activity lead to an increase in weight.

Philipson emphasizes the role of technological change in reducing the physical expenditure of calories per hour worked in the market and at home. This raises the cost of expending calories as time is diverted from passive to active leisure activities rather than exercise being a by-product of work hours. Following the lead of La Porta et al. (1999), Cutler et al. stress the role of legal heritage and regulatory authority on access to food preparation technology. Restricted access to such technology raises the price of fast, calorie-heavy meals, thus limiting the caloric intake and hence the development of obesity.<sup>3</sup>

La Porta et al. (1999) argue that common law tradition (as in England) is a proxy for intent to limit the state while civil law tradition as in France, Germany and other European countries is a proxy for intent to extend the power of the state. Common law countries tend to emphasize the private rights of individuals in any regulation; civil law countries focus regulation on obtaining an appropriate resolution from the state's viewpoint. Quoting Damaska (1986), La Porta et al. (2008) express the difference as: while common law is "dispute resolving", civil law is "policy implementing". Further, alluding to Pistor (2006), they argue that common law supports "unconditioned private contracting" in contrast to French Civil Law, which embraces "socially conditioned private contracting". Given that legal system refers to over-arching ideas, rules and regulations in a country, La Porta et al. (2008) "adopt a broad conception of legal origin as a style of social control of economic life (and maybe of other aspects of life as well)" (p. 3). Strong support is provided by diverse literatures demonstrating the impact of legal origin on several spheres of economic life, including financial development, unemployment, investment and business formation, the size of the unofficial economy, and international trade together with economic growth (e.g., La Porta et al., 2002; Djankov et al., 2002; Botero et al., 2004, and Mulligan and Shleifer, 2005. See La Porta et al., 2008 and the references therein).

There are at least two channels for legal systems to affect obesity through motor vehicle ownership. The first channel is direct motor vehicle regulation and the second is indirect via restrictions on urban sprawl. Following La Porta et al.'s (2008) notion that the influence of legal origin extends to social control of life, one may argue that, in civil law countries, the state tends to place greater restraint on the private use of motor vehicles, particularly in regard to commuting. These restraints often take the form of high taxes, parking fees and restrictions, limited spaces, or outright bans on motor vehicle usage. The Transportation Research Board (2001) notes that, "Gasoline prices are indeed much higher in Western Europe than in the United States, mainly because of higher taxes. Moreover, motor vehicle sales and excise taxes, registration charges, license fees, and other government levies are higher." On parking, the Transportation Research Board reports that fewer than 10% of American commuters pay any parking fee. In contrast, "Although many Western European businesses also provide free parking for their customers and employees, a higher proportion of businesses are located in commercial districts where parking is limited by available space and government regulations." This latter quote makes it clear that governments in Western Europe (with predominantly civil law heritage) tend to restrict parking. This suggests that increased motor vehicle ownership in common law countries will have fewer restraints placed on individual discretion; in civil law countries, regulation will channel the reliance of motor vehicles in ways the state perceives appropriate. Under civil law mass transit alternatives benefit from these restrictions leading to an associated societal increase in physical activity.

In terms of urban sprawl, the positive relationship between spatial development of cities and physical inactivity, obesity and other health problems is widely documented (e.g., Ewing et al., 2003; Zhao and Kaestner, 2010). On the other hand, common (civil) law countries are likely to be associated with lower (greater) regulatory barriers to the spread of home ownership to the far suburbs, with a concomitant decrease (increase) in population density and increased (decreased) reliance on motor vehicles.<sup>4</sup> Automobile dependence in common law countries is evident from Houghton's (2003) estimates of per capita greenhouse gas emissions: of the top twenty countries ranked by per capita gas emissions in 2000, sixteen were common law

<sup>2</sup> See OECD Health Division data at [www.oecd.org/dataoecd/20/51/37622205.xls](http://www.oecd.org/dataoecd/20/51/37622205.xls) for data showing rising obesity rates in all OECD countries, albeit from very different levels. The US doubled its rate from around 15% in 1978 to over 30 by 2000; in the UK the rate tripled from around 7 in 1980 to 21% by 2000; most countries on the continent of Europe rose from 5% to 7% in the 1970s and 1980s to the 9–13% range by the early 2000s. The contrast in levels may not be quite as stark because the European levels are based on self-reports while those for the USA and the UK are based on actual measurements taken. Nevertheless substantial differences in levels would likely remain were the Europeans to use the same measurement techniques.

<sup>3</sup> Of course, technological improvements have also contributed to many scientific advances, especially in common law countries, so these restrictions may have unintended side effects. Furthermore, civil law governments may not always implement what is best for social welfare.

<sup>4</sup> Consider OECD cities of 1.5 million population or larger; 27 rank in the top 100 cities ranked by population density with twenty-two civil law countries and five common law countries. In the next 100 densest cities, the situation is reversed; thirty represent common law countries and five civil law countries. Large cities in common law countries tend to have lower density, consistent with the notion that these countries have fewer restrictions on urban sprawl (City Mayors, 2011).

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